

***In the Claims***

Please cancel claims 10, and 32-42, without prejudice as to their further prosecution.

Please rewrite the pending claims as follows:

1. (original) A crystal comprising LuxS in crystalline form.
2. (original) The crystal of Claim 1 wherein the LuxS is *H. pylori* Lux S, *H. influenzae* LuxS or *D. radiodurans* Lux S.
3. (currently amended) The crystal of Claim 1 which ~~is diffraction quality produces measurable diffraction to at least 3Å resolution~~.
4. (original) The crystal of Claim 1 which is a native crystal.
5. (original) The crystal of Claim 1 which is a heavy-atom derivative crystal.
6. (currently amended) The crystal of Claim 1 in which LuxS is a mutant, wherein said mutant has LuxS activity.
7. (currently amended) The crystal of Claim 6 1, in which ~~the mutant is a LuxS is a~~ selenomethionine or selenocysteine mutant.
8. (currently amended) The crystal of Claim 6 1, in which ~~the mutant is a LuxS is a~~ conservative mutant.
9. (original) The crystal of Claim 6, in which the mutant is a truncated or extended mutant.
10. (cancelled)
11. (currently amended) The *H. pylori* Lux S crystal of claim 1 2, which is characterized by a unit cell of a=71.04±0.7Å, b=71.04±0.7Å, c=130.14±1.3Å, α=90.0, β=90.0, and γ=90.0.
12. (currently amended) The *H. influenzae* LuxS crystal of claim 1 2, which is characterized by a unit cell of a=129.59±1.3Å, b=129.59±1.3Å, c=53.74±0.5Å, α=90.0, β=90.0, and γ=90.0.
13. (currently amended) The *D. radiodurans* LuxS crystal of claim 1 2, which is characterized by a unit cell of a=43.53±0.5Å, b=81.87±0.8Å, c=49.30±0.5Å, α=90.0, β=102.85, and γ=90.0.

14. (currently amended) The *D. radiodurans LuxS* crystal of claim 4 2, which is characterized by a unit cell of  $a=51.08\pm0.5\text{\AA}$ ,  $b=70.04\pm0.7\text{\AA}$ ,  $c=49.75\pm0.5\text{\AA}$ ,  $\alpha=90.0$ ,  $\beta=102.85$ , and  $\gamma=90.0$ .
15. (original) The crystal of Claim 1, which is produced by a method comprising the steps of:
  - (a) mixing a volume of a solution comprising the LuxS with a volume of a reservoir solution comprising a precipitant; and
  - (b) incubating the mixture obtained in step (a) over the reservoir solution in a closed container, under conditions suitable for crystallization until the crystal forms.
16. (original) The crystals of Claims 11-14, wherein the precipitant is present in a concentration between about 15% and about 35% (w/v).
17. (original) The crystals of Claims 11-14 wherein the precipitant is polyethylene glycol or PEG MME with an average molecular weight between about 1000 Da and about 10000 Da.
18. (original) The crystals of Claims 11-14, wherein the solution further comprises between about 10 mM and about 200 mM buffer.
19. (original) The crystals of Claim 18 wherein the buffer is HEPES, Tris, MES, MOPS, Bis-Tris, Sodium cacodylate, ACES, ADA, BES, or Citric acid.
20. (original) The crystals of Claims 11-14, wherein the solution further comprises between 0 mM and about 300 mM ammonium sulfate.
21. (original) The crystals of Claims 11-14, wherein the solution has a pH of between about 5.0 and about 7.0
22. (original) The crystals of Claims 11-14, which is produced by incubating the mixture comprising LuxS and reservoir solution at a temperature of between about 4°C and about 25°C.
23. (original) A method of making the crystal of Claim 1, comprising:
  - (a) mixing a volume of a solution comprising the LuxS with a volume of a reservoir solution comprising a precipitant; and

- (b) incubating the mixture obtained in step (a) over the reservoir solution in a closed container, under conditions suitable for crystallization until the crystal forms.
24. (original) The method of Claim 23 wherein the LuxS polypeptide is *H. pylori* LuxS polypeptide, *H. influenzae* LuxS polypeptide or *D. radiodurans* LuxS polypeptide.
25. (original) The method of Claim 23, wherein the precipitant is PEG or PEG MME with an average molecular weight between about 1000 and about 10000.
26. (original) The method of Claim 23, wherein the precipitant is present in a concentration between about 15 % and about 35 % (w/v).
27. (original) The method of Claim 23, wherein the solution further comprises between about 10mM and about 200mM buffer.
28. (original) The method of Claim 27 wherein the buffer is HEPES, Tris, MES, MOPS, Bis-Tris, Sodium cacodylate, ACES, ADA, BES, or Citric acid.
29. (original) The method of Claim 23, wherein the solution further comprises between 0 mM and about 300 mM ammonium sulfate.
30. (original) The method of Claim 23, wherein the solution has a pH of between about 5.0 and about 7.0
31. (original) The method of Claim 23, wherein the mixture comprising LuxS and reservoir solution is incubated at a temperature of between about 4 °C and about 25 °C.
- 32-42. (cancelled)
- 43-53 (withdrawn)